

Claims

1. Control system for a hydrostatic transmission in an open
5 circuit comprising a hydraulic pump (2), provided for
delivery to a first pump-side main line (5a) or a second
pump-side main line (6a), and a hydraulic motor (3),
connected to a first motor-side main line (5b) and second
motor-side main line (6b), and comprising a brake valve
10 unit (19, 19', 60, 60', 80), via which the first pump-side
main line (5a) is connectable to the first motor-side main
line (5b) and the second pump-side main line (6a) is
connectable to the second motor-side main line (6b),

characterised

15 in that the first motor-side main line (5b) or second
motor-side main line (6b), situated downstream of the
hydraulic motor (3), is connectable to a tank volume (12)
in a throttled manner by means of the brake valve unit (19,
19', 60, 60', 80) in dependence on the pressure prevailing
20 in said lines.

2. Control system according to Claim 1,

characterised

in that the brake valve unit (19, 19', 60, 60', 80)
25 comprises a brake valve (29, 61, 61', 81) with a first
measuring surface (35, 65, 90), and the brake valve (29,
61, 61', 81) is subjected to a brake pressure at the first
measuring surface (35, 65, 90) counter to a spring force,
which pressure is dependent on the pressure prevailing in
30 the first motor-side main line (5b) or second motor-side
main line (6b), situated downstream of the hydraulic motor
(3).

3. Control system according to Claim 2,
characterised

in that a pilot control valve (45), connected on the outlet
side to the first measuring surface (35) of the brake valve
5 (29), is provided to produce the brake pressure.

4. Control system according to Claim 3,
characterised

in that the pilot control valve (45) is connected on the
10 inlet side, via a shuttle valve (50), to the first motor-
side main line (5b) or second motor-side main line (6b),
respectively.

5. Control system according to Claim 3 or 4,

15 **characterised**

in that the pilot control valve (45) for controlling the
brake pressure is subjected to the pressure prevailing in
the first motor-side main line (5b) or second motor-side
main line (6b), situated downstream of the hydraulic motor
20 (3).

6. Control system according to one of Claims 2 to 5,
characterised

in that the brake valve (29, 61, 61') has a second
25 measuring surface (38, 66, 66'), which acts on the brake
valve (29, 61, 61') in the same direction as the first
measuring surface (35, 65, 65') and which is subjected to a
hydrostatic force from the first pump-side main line (5a)
or second pump-side main line (6a), situated upstream of
30 the hydraulic motor (3).

7. Control system according to one of Claims 1 to 6,
characterised

in that the hydraulic pump can be connected to the first
pump-side main line (5a) or the second pump-side main line
5 (6a) via a travelling direction valve (4).

8. Control system according to Claim 7,
characterised

in that, for operation of the hydrostatic transmission (1)
10 with changing flow direction, the brake valve unit (19,
19', 60, 60', 80) is symmetrically constructed.

9. Control system according to one of Claims 1 to 8,
characterised

15 in that the brake valve unit (60, 60') comprises a first
brake valve (61) and a second brake valve (61'), the first
pump-side main line (5a) being connectable in a throttled
manner to the first motor-side main line (5b) by means of
the first brake valve (61) and the second pump-side main
20 line (6a) being connectable in a throttled manner to the
second motor-side main line (6b) by means of the second
brake valve (61'), in dependence on the pressure prevailing
in the first motor-side main line (5b) and second motor-
side main line (6b), situated downstream of the hydraulic
25 motor (3), respectively.

10. Control system according to one of Claims 1 to 9,
characterised

in that the first pump-side main line (5a) and the first
30 motor-side main line (5b) and/or the second pump-side main
line (6a) and the second motor-side main line (6b) are
connected to one another each by a check valve (27, 28)
which opens towards the hydraulic motor (3).

11. Control system according to Claim 1,
characterised

in that the first pump-side main line (5a) and the first
5 motor-side main line (5b), and the second pump-side main
line (6a) and the second motor-side main line (6b),
respectively, are connectable to one another in parallel
via the brake valve (81).

10 12. Control system according to one of Claims 1 to 11,
characterised

in that, in a rest position of the brake valve unit (19,
19', 60, 60', 80), the flow path from the first motor-side
main line (5b) towards the first pump-side main line (5a)
15 and from the second motor-side main line (6b) towards the
second pump-side main line (6a), respectively, is
interrupted.

13. Control system according to one of Claims 1 to 12,
20 **characterised**

in that, in a rest position of the brake valve unit (19,
19', 80), the first motor-side main line (5b) is connected
in a throttled manner to the second motor-side main line
(6b).

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14. Control system according to Claim 7,
characterised

in that the connection to the tank volume (12) takes place
via the travelling direction valve (4).

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15. Control system according to Claim 14,
characterised

in that the travelling direction valve (4) has a rest
position in which the first pump-side main line (5a) and
5 the second pump-side main line (6a) are connected to the
tank volume (12).

16. Control system according to one of Claims 3 to 5,
characterised

10 in that the pressure present at the pilot control valve
(45) on the inlet side is controllable via a brake pressure
control valve (120).

Translator's notes

The follow errors have been corrected in the translation

- 5 Page 2, line 25: das ---> dass
- Page 4, line 10: dargestellten ---> dargestellt
- Page 7, lines 4-6: die erste ... Hauptleitung 6a appears to be redundant, so omitted
- Page 7, line 15: verbindet ---> verbunden ist
- 10 Page 9, line 2: 25 ---> 35
- Page 9, line 27: 1 ---> 31
- Page 10, line 10: Verbindung ---> die Verbindung
- Page 12, line 29: 6a ---> 5b
- Page 12, line 33: 35' ---> 35
- 15 Page 24, line 2: dass ---> das